

WHAT IS CLAIMED IS:

1. A bar-type wireless communication terminal comprising:
a lower body having a camera lens unit arranged in its one side, a first keypad arranged in its front side and a second keypad arranged in its rear side; and
5 an upper body having a display device disposed in its front side, said upper body being coupled to an uppermost end of the lower body in such a manner that the upper body is allowed to rotate in a twisted direction with respect to a rotation axis extending in a longitudinal direction of the lower body.
- 10 2. The bar-type wireless communication terminal as set forth in claim 1, wherein said upper body further comprises a third keypad arranged below the display device.
3. The bar-type wireless communication terminal as set forth in claim 1, wherein the first keypad has a 3×4 array and is adapted to input data including numbers and characters.
- 15 4. The bar-type wireless communication terminal as set forth in claim 1, wherein the second keypad has a function of a shutter switch for the camera lens unit.
5. The bar-type wireless communication terminal as set forth in claim 1, wherein the second keypad has a function of a zoom switch for the camera lens unit.
- 20 6. A rotary type hinge device for a wireless communication terminal comprising:
a first hinge base having a hinge housing and first coupling arms extended laterally in opposite directions from a lower end of the hinge housing, the hinge housing defining a vertically extended receiving space; and
a second hinge base having a rotating member and second coupling arms extended laterally in opposite directions from an upper end of the rotating member, the
25 rotating member being received inside the hinge housing to rotate therein relative to a rotation axis extending in a vertical direction of the first hinge base.
7. The rotary type hinge device as set forth in claim 6, further comprising:
a first hinge cam vertically reciprocating inside the hinge housing by receiving a

certain elastic force, the first hinge cam being formed with a receiving hole for allowing the rotating member to pass therethrough, the first hinge cam also being formed at its end with ridge-shaped and valley-shaped portions, which are alternately arranged in a circumferential direction thereof; and

5 a second hinge cam extended downwardly from a lower surface of the second coupling arms while surrounding an outer peripheral surface of the rotating member, the second hinge cam being formed at its end with ridge-shaped and valley-shaped portions alternately arranged in a circumferential direction thereof, the ridge-shaped and valley-shaped portions of the second hinge cam corresponding to the valley-shaped and ridge-shaped portions of the first hinge cam.

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8. The rotary type hinge device as set forth in claim 7, wherein the respective ridge-shaped and valley-shaped portions formed at each of the first and second hinge cams are engaged with each other by an elastic force applied to the first hinge cam, thereby causing the rotation of the second hinge base to be stopped at substantially constant angular intervals.

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9. The rotary type hinge device as set forth in claim 8, wherein the second hinge base is stopped in rotation at intervals of about 90°.

10. The rotary type hinge device as set forth in claim 7, further comprising:
guide grooves vertically extended at an inner peripheral surface of the hinge
20 housing; and
guide protrusions radially protruded from an outer peripheral surface of the first hinge cam and configured to linearly reciprocate inside the guide grooves, respectively, whereby the first hinge cam linearly reciprocates inside the hinge housing.

11. The rotary type hinge device as set forth in claim 7, further comprising a coil
25 spring inside the hinge housing, the coil spring providing an elastic force in a direction for causing the first and second hinge cams to come into close contact with each other.

12. The rotary type hinge device as set forth in claim 7, further comprising:
a guide rib formed inside the hinge housing, the guide rib vertically extending at
a position spaced apart from an inner peripheral surface of the hinge housing by a certain

distance;

guide slots extended downwardly from an upper end of the guide rib; and

- 5 guide protrusions radially protruded from an outer peripheral surface of the first hinge cam and configured to linearly reciprocate inside the guide slots, whereby the first hinge cam linearly reciprocates inside the hinge housing.

13. The rotary type hinge device as set forth in claim 12, further comprising a coil spring between the inner peripheral surface of the hinge housing and the guide rib, thereby providing an elastic force to the first hinge cam, the elastic force of the coil spring being applied to the guide protrusions of the first hinge cam.

- 10 14. The rotary type hinge device as set forth in claim 6, wherein the rotating member is inserted from an upper end of the hinge housing so that its lower end portion is protruded downwardly from the lower end of the hinge housing, the rotating member being formed at an outer peripheral surface of the lower end portion with an annular fitting groove for allowing an E-ring to be fitted therein.

- 15 15. The rotary type hinge device as set forth in claim 6, wherein the rotating member is formed with a vertically extended through hole.

16. The rotary type hinge device as set forth in claim 6, further comprising:

a first stopper protruded upwardly from the upper end of the hinge housing while extending circumferentially within a certain angular range; and

- 20 a second stopper radially extended from an outer peripheral surface of the rotating member and protruded downwardly from a lower surface of the second coupling arms, whereby the first and second stoppers limit a rotation range of the second hinge base.

- 25 17. The rotary type hinge device as set forth in claim 16, wherein the second hinge base is rotated within a range of about 180°.

18. A rotary type hinge device for a bar-type wireless communication terminal comprising a lower body, and an upper body coupled to an upper end of the lower body so that it is rotatable in a twisting direction relative to a rotation axis extending in a longitudinal direction of the lower body, the rotary type hinge device comprising:

a first hinge base having a hinge housing and first coupling arms extended laterally in opposite directions from a lower end of the hinge housing, the hinge housing defining a vertically extended receiving space, the first hinge base being fixed inside the lower body so that the hinge housing is protruded upwardly out of the upper end of the lower body at its upper end; and

a second hinge base having a rotating member and second coupling arms extended laterally in opposite directions from an upper end of the rotating member, the rotating member being coupled to the hinge housing to rotate therein relative to a rotation axis extending in a vertical direction of the first hinge base, the second hinge base being fixed inside the upper body so that the rotating member is protruded downwardly out of a lower end of the upper body at its lower end.

19. The rotary type hinge device as set forth in claim 18, further comprising:

a first hinge cam vertically reciprocating inside the hinge housing by receiving a certain elastic force, the first hinge cam being formed with a receiving hole for allowing the rotating member to pass therethrough, the first hinge cam also being formed at its end with ridge-shaped and valley-shaped portions, which are alternately arranged in a circumferential direction thereof; and

a second hinge cam extended downwardly from a lower surface of the second coupling arms while surrounding an outer peripheral surface of the rotating member, the second hinge cam being formed at its end with ridge-shaped and valley-shaped portions alternately arranged in a circumferential direction thereof, the ridge-shaped and valley-shaped portions of the second hinge cam corresponding to the valley-shaped and ridge-shaped portions of the first hinge cam.

20. The rotary type hinge device as set forth in claim 19, wherein the respective ridge-shaped and valley-shaped portions formed at each of the first and second hinge cams are engaged with each other by an elastic force applied to the first hinge cam, thereby causing the rotation of the second hinge base to be stopped at substantially constant angular intervals.

21. The rotary type hinge device as set forth in claim 19, further comprising:
guide grooves vertically extended at an inner peripheral surface of the hinge housing; and

guide protrusions radially protruded from an outer peripheral surface of the first hinge cam and configured to linearly reciprocate inside the guide grooves, respectively, whereby the first hinge cam linearly reciprocates inside the hinge housing.

5 22. The rotary type hinge device as set forth in claim 19, further comprising a coil spring inside the hinge housing, the coil spring providing an elastic force in a direction for causing the first and second hinge cams to come into close contact with each other.

10 23. The rotary type hinge device as set forth in claim 18, wherein the rotating member is inserted from an upper end of the hinge housing so that its lower end portion is protruded downwardly from the lower end of the hinge housing, the rotating member being formed at an outer peripheral surface of the lower end portion with an annular fitting groove for allowing an E-ring to be fitted therein.

15 24. The rotary type hinge device as set forth in claim 18, wherein the rotating member is formed with a vertically extended through hole for providing a passage for a flexible printed circuit.

20 25. The rotary type hinge device as set forth in claim 18, further comprising:
a first stopper formed at the upper end of the hinge housing while extending circumferentially within a certain angular range; and
a second stopper radially extended from an outer peripheral surface of the rotating member and protruded downwardly from a lower surface of the second coupling arms, whereby the first and second stoppers limit a rotation range of the second hinge base.

26. The rotary type hinge device as set forth in claim 25, wherein the second hinge base is rotated within a range of about 180°.